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1641
1653RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/910,009ADATE: 02/13/2002
TIME: 15:19:11Input Set : A:\2314-242rev.ST25.txt
Output Set: N:\CRF3\02132002\I910009A.raw

P5

3 <110> APPLICANT: University of Utah Research Foundation
4 Cognetix, Inc.
5 Olivera, Baldomero M.
6 McIntosh, J. Michael
7 Garrett, James E.
8 Watkins, Maren
9 Cruz, Lourdes J.
10 Shon, Ki-Joon
11 Jacobsen, Richard
12 Jones, Robert M.
13 Cartier, G. Edward
14 Shen, Greg S.
15 Wagstaff, John D.

ENTERED

17 <120> TITLE OF INVENTION: Mu-Conopeptides
19 <130> FILE REFERENCE: 2314-242
21 <140> CURRENT APPLICATION NUMBER: US/09/910,009A
21 <141> CURRENT FILING DATE: 2001-07-23
21 <150> PRIOR APPLICATION NUMBER: US 60/219,619
22 <151> PRIOR FILING DATE: 2000-07-21
24 <150> PRIOR APPLICATION NUMBER: US 60/245,157
25 <151> PRIOR FILING DATE: 2000-11-03
27 <150> PRIOR APPLICATION NUMBER: US 60/264,319
28 <151> PRIOR FILING DATE: 2001-01-29
30 <150> PRIOR APPLICATION NUMBER: US 60/277,270
31 <151> PRIOR FILING DATE: 2001-03-21
33 <160> NUMBER OF SEQ ID NOS: 520
35 <170> SOFTWARE: PatentIn version 3.0
37 <210> SEQ ID NO: 1
38 <211> LENGTH: 280
39 <212> TYPE: DNA
40 <213> ORGANISM: Conus arentus
42 <400> SEQUENCE: 1
43 caagaaggat cgatagcagt tcatgatgtc taaactggga gtcttcttga ccatctgtat
45 gcttctgttt ccccttactg ctcttccgct ggatggggat caacctgcag accgacctgc
47 agagcgtatg caggacgact ttataactga gcatcatccc ctgtttgatc ctgtcaaacg
49 gtgttgcgag aggccatgca acataggatg cgtaccttgt tgtaaatgac cagctttgtc
51 atcgcgccct catcaagcga ataagtaaaa cgattgcagt
54 <210> SEQ ID NO: 2
55 <211> LENGTH: 67
56 <212> TYPE: PRT
57 <213> ORGANISM: Conus arentus
59 <400> SEQUENCE: 2
61 Met Met Ser Lys Leu Gly Val Phe Leu Thr Ile Cys Met Leu Leu Phe

60
120
180
240
280

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```

62 1          5          10          15
64 Pro Leu Thr Ala Leu Pro Leu Asp Gly Asp Gln Pro Ala Asp Arg Pro
65          20          25          30
67 Ala Glu Arg Met Gln Asp Asp Phe Ile Thr Glu His His Pro Leu Phe
68          35          40          45
70 Asp Pro Val Lys Arg Cys Cys Glu Arg Pro Cys Asn Ile Gly Cys Val
71          50          55          60
73 Pro Cys Cys

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74 65

76 <210> SEQ ID NO: 3

77 <211> LENGTH: 14

78 <212> TYPE: PRT

79 <213> ORGANISM: Conus arentus

81 <220> FEATURE:

82 <221> NAME/KEY: PEPTIDE

83 <222> LOCATION: (1)..(14)

84 <223> OTHER INFORMATION: Xaa at residue 3 is Glu or gamma-carboxy Glu; Xaa at residue

5 an

85 d 12 is Pro or Hyp

88 <400> SEQUENCE: 3

90 Cys Cys Xaa Arg Xaa Cys Asn Ile Gly Cys Val Xaa Cys Cys

91 1 5 10

93 <210> SEQ ID NO: 4

94 <211> LENGTH: 244

95 <212> TYPE: DNA

96 <213> ORGANISM: Conus atlanticus

98 <400> SEQUENCE: 4

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99 ggatccatga tgtctaaact gggagtccttg ttgaccatct gtctgcttct gtttccactt 60
101 actgctcttc cgctggatga agatcaaccg gtacaccgac ctgcagagcg tatgcaggac 120
103 atttcatctg atcaacatct cttctttgat ctcacaaac ggtgctgcga gttgccatgc 180
105 gggccaggct tttgcgtccc ttgttgctga catcaataac gtgttgatga ccaactttct 240
107 cgag 244

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110 <210> SEQ ID NO: 5

111 <211> LENGTH: 69

112 <212> TYPE: PRT

113 <213> ORGANISM: Conus atlanticus

115 <400> SEQUENCE: 5

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117 Gly Ser Met Met Ser Lys Leu Gly Val Leu Leu Thr Ile Cys Leu Leu
118 1 5 10 15

```

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120 Leu Phe Pro Leu Thr Ala Leu Pro Leu Asp Glu Asp Gln Pro Val His
121 20 25 30

```

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123 Arg Pro Ala Glu Arg Met Gln Asp Ile Ser Ser Asp Gln His Leu Phe
124 35 40 45

```

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126 Phe Asp Leu Ile Lys Arg Cys Cys Glu Leu Pro Cys Gly Pro Gly Phe
127 50 55 60

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129 Cys Val Pro Cys Cys

130 65

132 <210> SEQ ID NO: 6

133 <211> LENGTH: 15

134 <212> TYPE: PRT

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135 <213> ORGANISM: Conus atlanticus
137 <220> FEATURE:
138 <221> NAME/KEY: PEPTIDE
139 <222> LOCATION: (1)..(15)
140 <223> OTHER INFORMATION: Xaa at residue 3 is Glu or gamma-carboxy Glu; Xaa at residue

5, 8

141 and 13 is Pro or Hyp

144 <400> SEQUENCE: 6

146 Cys Cys Xaa Leu Xaa Cys Gly Xaa Gly Phe Cys Val Xaa Cys Cys
147 1 5 10 15

149 <210> SEQ ID NO: 7

150 <211> LENGTH: 310

151 <212> TYPE: DNA

152 <213> ORGANISM: Conus aurisiacus

154 <400> SEQUENCE: 7

155	caagagggat	cgatagcagt	tcatgatgtc	taaactggga	gtcttgttga	ccatctgttt	60
157	gcttctgttt	ccccttactg	ctcttccgat	ggatggagat	caatctgtag	accgacctga	120
159	agagcgtatg	caggacgaca	tttcatctga	gcagcatccc	ttgtttaatc	agaaaagaat	180
161	gtgttgccgc	gaaggccgga	aatgccccag	ctatttcaga	aacagtcaga	tttgtcattg	240
163	ttgttaaatg	acaacgtgtc	gatgaccaac	ttcgttatca	cgactaatga	ataagtaaaa	300
165	cgattgcagt						310

168 <210> SEQ ID NO: 8

169 <211> LENGTH: 74

170 <212> TYPE: PRT

171 <213> ORGANISM: Conus aurisiacus

173 <400> SEQUENCE: 8

175	Met	Met	Ser	Lys	Leu	Gly	Val	Leu	Leu	Thr	Ile	Cys	Leu	Leu	Phe
176	1				5					10					15
178	Pro	Leu	Thr	Ala	Leu	Pro	Met	Asp	Gly	Asp	Gln	Ser	Val	Asp	Arg
179				20					25					30	
181	Glu	Glu	Arg	Met	Gln	Asp	Asp	Ile	Ser	Ser	Glu	Gln	His	Pro	Leu
182				35				40					45		
184	Asn	Gln	Lys	Arg	Met	Cys	Cys	Gly	Glu	Gly	Arg	Lys	Cys	Pro	Ser
185				50			55					60			
187	Phe	Arg	Asn	Ser	Gln	Ile	Cys	His	Cys	Cys					
188	65						70								

190 <210> SEQ ID NO: 9

191 <211> LENGTH: 22

192 <212> TYPE: PRT

193 <213> ORGANISM: Conus aurisiacus

195 <220> FEATURE:

196 <221> NAME/KEY: PEPTIDE

197 <222> LOCATION: (1)..(22)

198 <223> OTHER INFORMATION: Xaa at residue 5 is Glu or gamma-carboxy Glu; Xaa at residue

10 i

199 s Pro or Hyp; Xaa at residue 12 is Tyr, 125I-Tyr, mono-iodo-Tyr,

200 di-iodo-Tyr, O-sulpho-Tyr or O-phospho-Tyr

203 <400> SEQUENCE: 9

205 Met Cys Cys Gly Xaa Gly Arg Lys Cys Xaa Ser Xaa Phe Arg Asn Ser
206 1 5 10 15

208 Gln Ile Cys His Cys Cys

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209          20
211 <210> SEQ ID NO: 10
212 <211> LENGTH: 257
213 <212> TYPE: DNA
214 <213> ORGANISM: Conus aurisiacus
216 <400> SEQUENCE: 10
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219 actgctcttc cgatcgatgg agatcaatct gtagaccgac ctgcagagcg tatgcaggat      120
221 gacatttcat ctgagcagca tcgcttggtc aatcagaaaa gaaggtgctg ccggtggcca      180
223 tgcccccgac aaatcgacgg tgaatattgt ggctgttgcc ttggatgata accgtgttga      240
225 tgaccaactt tctcgag
228 <210> SEQ ID NO: 11
229 <211> LENGTH: 75
230 <212> TYPE: PRT
231 <213> ORGANISM: Conus aurisiacus
233 <400> SEQUENCE: 11
235 Gly Ser Met Met Ser Lys Leu Gly Val Leu Leu Thr Ile Cys Leu Leu
236 1          5          10          15
238 Leu Phe Pro Leu Thr Ala Leu Pro Ile Asp Gly Asp Gln Ser Val Asp
239          20          25          30
241 Arg Pro Ala Glu Arg Met Gln Asp Asp Ile Ser Ser Glu Gln His Arg
242          35          40          45
244 Leu Phe Asn Gln Lys Arg Arg Cys Cys Arg Trp Pro Cys Pro Arg Gln
245          50          55          60
247 Ile Asp Gly Glu Tyr Cys Gly Cys Cys Leu Gly
248 65          70          75
250 <210> SEQ ID NO: 12
251 <211> LENGTH: 19
252 <212> TYPE: PRT
253 <213> ORGANISM: Conus aurisiacus
255 <220> FEATURE:
256 <221> NAME/KEY: PEPTIDE
257 <222> LOCATION: (1)..(19)
258 <223> OTHER INFORMATION: Xaa at residue 13 is Glu or gamma-carboxy Glu; Xaa at
residue 5 a
259          nd 7 is Pro or Hyp; Xaa at residue 4 is Trp or Bromo Trp; Xaa at
260          residue 14 is Tyr, 125I-Tyr, mono-iodo-Tyr, di-iodo-Tyr, O-sulpho
261          -Tyr or O-phospho-Tyr
264 <400> SEQUENCE: 12
266 Cys Cys Arg Xaa Xaa Cys Xaa Arg Gln Ile Asp Gly Xaa Xaa Cys Gly
267 1          5          10          15
269 Cys Cys Leu
272 <210> SEQ ID NO: 13
273 <211> LENGTH: 262
274 <212> TYPE: DNA
275 <213> ORGANISM: Conus aurisiacus
277 <400> SEQUENCE: 13
278 ggatccatga tgtctaaact gggagtcttg ttgaccatct gtctacttct gtttcccctt      60
280 actgcttttc cgatggatgg agatcaacct gcagaccaac ctgcagatcg tatgcaggac      120
282 gacatttcat ctgagcagta tcccttggtt gataagagac aaaagtgttg cactgggaag      180

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284 aagggggtcat gctccggcaa agcatgcaaa aatctcaaat gttgctctgg acgataacgt      240
286 gttgatgacc aactttctcg ag                                          262
289 <210> SEQ ID NO: 14
290 <211> LENGTH: 78
291 <212> TYPE: PRT
292 <213> ORGANISM: Conus aurisiacus
294 <400> SEQUENCE: 14
296 Gly Ser Met Met Ser Lys Leu Gly Val Leu Leu Thr Ile Cys Leu Leu
297 1          5          10          15
299 Leu Phe Pro Leu Thr Ala Phe Pro Met Asp Gly Asp Gln Pro Ala Asp
300          20          25          30
302 Gln Pro Ala Asp Arg Met Gln Asp Asp Ile Ser Ser Glu Gln Tyr Pro
303          35          40          45
305 Leu Phe Asp Lys Arg Gln Lys Cys Cys Thr Gly Lys Lys Gly Ser Cys
306          50          55          60
308 Ser Gly Lys Ala Cys Lys Asn Leu Lys Cys Cys Ser Gly Arg
309 65          70          75
311 <210> SEQ ID NO: 15
312 <211> LENGTH: 23
313 <212> TYPE: PRT
314 <213> ORGANISM: Conus aurisiacus
316 <220> FEATURE:
317 <221> NAME/KEY: PEPTIDE
318 <222> LOCATION: (1)..(23)
319 <223> OTHER INFORMATION: Xaa at residue 1 is Gln or pyro-Glu
322 <400> SEQUENCE: 15
W- 324 Xaa Lys Cys Cys Thr Gly Lys Lys Gly Ser Cys Ser Gly Lys Ala Cys
325 1          5          10          15
327 Lys Asn Leu Lys Cys Cys Ser
328          20
330 <210> SEQ ID NO: 16
331 <211> LENGTH: 232
332 <212> TYPE: DNA
333 <213> ORGANISM: Conus aurisiacus
335 <400> SEQUENCE: 16
336 ggatccatga tgtctaaact gggagtcttg ctgaccatct gtctgcttct gtttcactt      60
338 actgctgttc cgctggatgg agatcaacct ctagaccgac acgcggagcg tatgcatgat      120
340 ggcatttcac cttaaagcca tccctggttt gatcccgta aacgggtgttg caaggtgcaa      180
342 tgcgagtctt gcaccccttg ttgctaacgt gttgatgacc aactttctcg ag          232
345 <210> SEQ ID NO: 17
346 <211> LENGTH: 68
347 <212> TYPE: PRT
348 <213> ORGANISM: Conus aurisiacus
350 <400> SEQUENCE: 17
352 Gly Ser Met Met Ser Lys Leu Gly Val Leu Leu Thr Ile Cys Leu Leu
353 1          5          10          15
355 Leu Phe Pro Leu Thr Ala Val Pro Leu Asp Gly Asp Gln Pro Leu Asp
356          20          25          30
358 Arg His Ala Glu Arg Met His Asp Gly Ile Ser Pro Lys Arg His Pro

```

Use of n and/or Xaa has been detected in the Sequence Listing.
 Review the Sequence Listing to insure a corresponding
 explanation is presented in the <220> to <223> fields of
 each sequence using n or Xaa.

VERIFICATION SUMMARY

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L:21 M:270 C: Current Application Number differs, Replaced Current Application No
L:21 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:90 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3
L:146 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:6
L:205 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9
L:266 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:12
L:324 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:15
L:381 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:18
L:438 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:21
L:494 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:24
L:550 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27
L:606 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:30
L:609 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:30
L:667 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:33
L:727 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:36
L:788 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:39
L:851 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:42
L:911 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:45
L:914 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:45
L:974 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:48
L:1037 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:51
L:1093 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:54
L:1152 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:57
L:1212 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:60
L:1215 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:60
L:1274 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:63
L:1277 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:63
L:1332 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:66
L:1390 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:69
L:1447 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:72
L:1506 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:75
L:1567 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:78
L:1626 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:81
L:1685 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:84
L:1741 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:87
L:1800 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:90
L:1859 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:93
L:1915 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:96
L:1990 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:99
L:1993 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:99
L:2068 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:102
L:2071 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:102
L:2087 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:103
L:2090 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:103
L:2150 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:106
L:2209 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:109
L:2212 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:109
L:2274 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:112

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L:2332 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:115
L:2389 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:118
L:2392 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:118
L:2451 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:121